



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appeal Brief Transmittal

In re application of: Ricard, *et al.*

Serial No.: 09/735,341

Filed on: 12/12/00

For: **RADIO RECEIVER THAT CHANGES FUNCTION ACCORDING TO THE OUTPUT OF AN
INTERNAL VOICE-ONLY DETECTOR**

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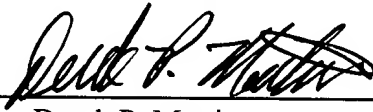
Sir:

Transmitted herewith for filing is an **Appeal Brief** in triplicate for the above-identified Application.

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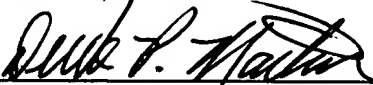
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Respectfully submitted,

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IFW AF

In re application of: Ricard, *et al.* Docket No.: ROC920000122US1
Serial No.: 09/735,341 Group Art Unit: 2685
Filed: 12/12/00 Examiner: LE, NHAN T.
For: RADIO RECEIVER THAT CHANGES FUNCTION ACCORDING TO THE
OUTPUT OF AN INTERNAL VOICE-ONLY DETECTOR

APPEAL BRIEF

Mail Stop APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
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Dear Sir/Madam:

This appeal is taken from the Examiner's final rejection, set forth in the Office Action dated 06/16/04, of appellant's claims 1-8, 10 and 12-17. Appellant's Notice of Appeal under 37 C.F.R. §1.191 was mailed on 09/14/04.

REAL PARTY IN INTEREST

International Business Machines Corporation is the Real Party in Interest.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences for this patent application.

STATUS OF CLAIMS

As filed, this case included claims 1-18. In the amendment filed on 04/01/04, claim 11 was canceled, and claims 1, 8, 10 and 12-17 were amended. In the pending final office action, claims 1-4, 8, 10, 12-14 and 17 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,490,166 to Heinzelmann in view of U.S. Patent No. 5,910,996 to Eggers. Claims 5 and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Heinzelmann in view of Eggers, and further in view of U.S. Patent No. 4,498,194 to Vandegraaf. Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over Heinzelmann in view of Eggers, and further in view of U.S. Patent No. 6,188,731 to Kim. Claims 6 and 16 were objected to as depending upon a rejected base claim, but would be allowable if properly rewritten in independent form. Claims 9 and 18 were allowed. Claims 1-10 and 12-18 are currently pending. Of these, claims 1-8, 10, and 12-17 stand finally rejected.

STATUS OF AMENDMENTS

After the first office action dated 01/05/04, an amendment was filed on 04/01/04, which has been entered. Therefore, the claims at issue in this appeal are the claims as amended by the amendment filed 04/01/04.

SUMMARY OF INVENTION

A radio receiver includes a voice-only detection mechanism that detects when the current radio station is transmitting mostly voice, and that changes the function of the receiver depending on whether or not the current radio station is transmitting mostly voice. In a first embodiment, the radio receiver mutes its audio output when the voice-only detection mechanism detects a voice broadcast. The audio output can be enabled once again when the voice-only detection mechanism detects a non-voice signal. The first embodiment thus allows commercials and disk jockey talk to be automatically muted, with the volume returned to its previous level when music resumes. In a variation of the first embodiment, the radio receiver mutes its audio output when the voice-only detection mechanism detects a non-voice broadcast, and enables the audio output when the voice-only detection mechanism detects a voice signal, thereby allowing a listener to listen to talk radio while muting musical commercials. In a second embodiment, the radio receiver changes to a different radio station when a voice-only signal is detected. The second embodiment preferably includes a spectrum analyzer that can store a frequency spectrum “signature” of a radio signal, and a second tuner that scans the available radio stations for a signal that matches the stored frequency spectrum signature. This allows the radio receiver to automatically switch from a first radio station to a second radio station that is playing music that matches the preferences of the listener when the voice-only detection mechanism detects a mostly voice signal. In a variation of the second embodiment, the radio receiver may automatically switch from a first talk radio station to a second talk radio station when the voice-only detection mechanism detects a musical signal, indicating a commercial.

ISSUES

The following issues are presented for review on this Appeal:

1. **Whether claims 1-4, 8, 10, 12-14 and 17 are unpatentable as obvious under 35 U.S.C. §103(a) over the combination of Heinzelmann and Eggers**
2. **Whether claims 5 and 15 are unpatentable as obvious under 35 U.S.C. §103(a) over the combination of Heinzelmann, Eggers and Vandegraaf**
3. **Whether claim 7 is unpatentable as obvious under 35 U.S.C. §103(a) over the combination of Heinzelmann, Eggers and Kim**
4. **Whether claims 6 and 16 are allowable in their current dependent form**

GROUPING OF CLAIMS

Claims 1, 2, 7, 10, 13 and 14 are grouped, and stand or fall together based on claim 1. Claims 3, 8, 12 and 17 are grouped, and stand or fall together based on claim 3. Claim 5 and 15 are grouped, and stand or fall together based on claim 5. Claims 6 and 16 are grouped, and stand or fall together based on claim 6. It is appellant's intention that the patentability, *vel non*, of claim 4 be considered independently, as this claim does not stand or fall with any other claim. This grouping of claims is appropriate because each set of claims includes a unique combination of limitations not found in the other sets of claims, and because claim 4 that is not grouped with any other claim includes a unique combination of limitations not found in any of the groups.

ARGUMENT

Issue 1: Whether claims 1-4, 8, 10, 12-14 and 17 are unpatentable as obvious under 35 U.S.C. §103(a) over the combination of Heinzelmann and Eggers

The Examiner rejected claims 1-4, 8, 10, 12-14 and 17 under 35 U.S.C. §103(a) as obvious over the combination of Heinzelmann and Eggers. Each of these claims is addressed below.

Claim 1

In the rejection of claim 1, the Examiner states:

Heinzelmann fails to teach a second output indication when the audio output of the tuner is mostly music. Eggers teaches a dual program audio device that it allows user to select 2 different radio channels such as new channel or music channel (see col. 3, lines 16-20). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Eggers into the system of Heinzelmann in order to provide users to select different radio channels based on their preferences.

Appellant respectfully asserts that the Examiner has failed to establish a prima facie case of obviousness for claim 1, and that neither Heinzelmann, Eggers or their combination teach or suggest the unique combination of features in claim 1.

Failure to Establish a Prima Facie Case of Obviousness

Appellant respectfully asserts that the Examiner has failed to establish a prima facie case of obviousness for claim 1 under 35 U.S.C. §103(a). In the Examiner's rejection quoted above, the Examiner admits that Heinzelmann fails to teach a second

output indication when the audio output of the tuner is mostly music. However, the Examiner never states that Eggers teaches this second output indication when the audio output of the tuner is mostly music. After admitting that Heinzelmann fails to teach a second output indication, to establish a prima facie case of obviousness for claim 1 based on the combination of Heinzelmann and Eggers, the Examiner would have to state that Eggers teaches the second output indication when the audio output of the tuner is mostly music, and would then have to state why one of ordinary skill in the art at the time the invention was made would be motivated to combine the second output indication of Eggers with Heinzelmann. The Examiner has made no such statement or showing, and has therefore failed to establish a prima facie case of obviousness for claim 1 under 35 U.S.C. §103(a).

The mechanics of establishing a prima facie case based on Heinzelmann and Eggers can be reduced to a simple formula. The Examiner admits that Heinzelmann does not teach limitation A. The Examiner then needs to state that Eggers teaches limitation A, followed by reasons that one of ordinary skill in the art would combine Eggers with Heinzelmann to achieve the claimed invention. This formulaic approach shows flaws in the Examiner's rejection. The Examiner admits that Heinzelmann does not teach a second output indication when the audio output of the tuner is mostly music. However, the Examiner never states or asserts that Eggers teaches the second output indication when the audio output of the tuner is mostly music. Instead, the Examiner makes a statement of the teachings of Eggers without indicating their relevance to the limitations in claim 1. Furthermore, the Examiner's rationale for combining Heinzelmann and Eggers is so Heinzelmann can provide the cited features of Eggers. Essentially, the Examiner has said that Heinzelmann does not teach limitation A, that Eggers teaches limitation B, and that one of ordinary skill in the art would combine Eggers with Heinzelmann to achieve limitation B in Heinzelmann. This formulaic approach shows the two fatal flaws in the Examiner's rejection: 1) the Examiner never asserts that Eggers teaches the second output indication when the audio

output of the tuner is mostly music; and 2) the Examiner's rationale for combining Heinzelmann and Eggers is defective, because it addresses features of Eggers that are unrelated to the second output indication in claim 1. For these reasons, the Examiner has failed to establish a prima facie case of obviousness for claim 1 under 35 U.S.C. §103(a).

The combination of Heinzelmann and Eggers does not teach or suggest claim 1

We now consider the substance of the Examiner's rejection, which states that claim 1 would have been obvious to one of ordinary skill in the art at the time the invention was made based on the teachings of Heinzelmann and Eggers. To determine whether this rejection has merit, we must analyze what Heinzelmann and Eggers teach.

Heinzelmann teaches a radio receiver that is capable of receiving both voice and data. The Technical Field and Background sections of Heinzelmann at col. 1 line 9 to col. 2 line 24 gives background information that helps understand the context of the Heinzelmann invention. The Technical Field section states that the invention of Heinzelmann relates generally to receivers and transceivers in communication systems and more specifically to **receivers receiving data and voice signals**. The Background section makes it clear that Heinzelmann is used in two-way radio communication networks where people are talking to each other, and allows muting data signals so the person using the radio doesn't hear a data burst. The Technical Field and Background of Heinzelmann thus expressly teach away from a radio receiver that is capable of receiving music, as recited in claim 1.

In Heinzelmann, voice signals from the tuner are not muted, but when a data signal is detected, the audio output of the tuner is muted to avoid the user from hearing a data burst on the speaker output of the tuner. The detector in Heinzelmann distinguishes between data and non-data signals. Data signals are muted. Non-data

signals are allowed to play on the speaker. This is shown clearly in FIG. 8 of Heinzelmann. Even if music were transmitted over the radio disclosed in Heinzelmann, the music would be treated the same as a voice transmission, because the detector in Heinzelmann is present to mute data transmissions, and to let non-data transmissions through to the speaker. Music would thus be passed to the speaker the same as voice. Heinzelmann thus expressly teaches away from a voice-only detection mechanism that monitors the output of the tuner, and that provides a first output indication when the audio output of the tuner is mostly voice, and that provides a second output indication when the audio output of the tuner is mostly music, as recited in claim 1.

The Examiner reliance upon Eggers is confusing. The Examiner correctly states: "Eggers teaches a dual program audio device that allows user to select 2 different radio channels such as new channel or music channel (see col. 3, lines 16-30)." The Eggers system allows a user to tune to two radio stations at the same time. The specific example in Eggers allows a user to tune to a music station and a news station at the same time, with one of these played in the background (at a lower volume level) and the other played in the foreground (at a high volume level). The user may manually actuate switching circuitry on the apparatus to swap the volume levels of the two programs. This allows a user to listen to music with news in the background, and when the user hears new of interest, the user may actuate a switch that causes the news to be louder with the music in the background. Eggers thus teaches simultaneously listening to two different radio stations, and manually swapping volume levels of the two different radio stations when the user actuates a switch. It is unclear how any of these features of Eggers read on any of the limitations in claim 1. The voice-only detection mechanism in claim 1 monitors the audio output of the tuner, and provides a first output indication when the output of the tuner is mostly voice, and provides a second output indication when the audio output of the tuner is mostly music. Nowhere does Eggers teach or suggest these limitations in claim 1. In Eggers, the switching of

modes of the receiver (swapping the volume levels of the two stations) is done when the user manually actuates a switch. This teaches away from the monitoring of the voice-only detection mechanism that monitors the audio output of the tuner, and that provides first and second output indications depending on whether the audio output of the tuner is mostly voice or mostly music. The audio output in Eggers is monitored by the user, and the operational mode of the receiver in Eggers is changed by the user manually actuating a switch. For this reason, the combination of Heinzelmann and Eggers does not teach or suggest the voice-only detection mechanism expressly recited in claim 1.

Nowhere does Heinzelmann, Eggers, or their combination teach or suggest a voice-only detection mechanism with the limitations recited in claim 1, with a radio processor that changes an operational mode for the radio receiver according to the output indications of the voice-only detection mechanism. For these reasons, claim 1 is clearly allowable over the combination of Heinzelmann and Eggers. Appellant respectfully requests that the Examiner's rejection of claim 1 under 35 U.S.C. §103(a) be reversed.

Claims 2, 10, 13 and 14

Claims 2, 10, 13 and 14 are grouped with claim 1, and stand or fall according to the allowability of claim 1.

Claim 3

The arguments above with respect to claim 1 apply equally to claim 3, and are incorporated in this section by reference. Claim 3 recites muting the amplified audio signal when the first output indication is received, and unmuting the amplified audio signal when the second output indication is received. If we go back to claim 1, which

is the independent claim upon which claim 3 depends, we see that the voice-only detection mechanism provides the first output indication when the audio output of the tuner is mostly voice, and provides a second output indication when the audio output of the tuner is mostly music. Thus, claim 3 recites that the radio processor mutes the amplified audio signal when the audio output of the tuner is mostly voice, and unmutes the amplified audio signal when the audio output of the tuner is mostly music. In rejecting claim 3, the Examiner states that Heinzelmann teaches these limitations, citing col. 5 lines 47-67 of Heinzelmann. The cited language of Heinzelmann teaches muting data while allowing voice to pass through. In particular, Heinzelmann at col. 5 lines 65-67 states: "The analog gate 312 remains closed for the duration of the received voice signal. The analog gate 312 opens only if data has been detected or the carrier signal has ceased." Heinzelmann thus expressly teaches passing through a voice signal, and muting a data signal. The teaching in Heinzelmann of passing through the voice signal expressly teaches away from the limitation in claim 3 of muting the amplified audio signal, which occurs when the output of the tuner is mostly voice. Because Heinzelmann expressly teaches away from the limitations in claim 3, claim 3 is allowable over the combination of Heinzelmann and Eggers. In addition, claim 3 depends on claim 2, which depends on claim 1, which is allowable for the reasons given above. As a result, claim 3 is also allowable as depending on an allowable independent claim. Appellant respectfully requests that the Examiner's rejection of claim 3 under 35 U.S.C. §103(a) be reversed.

Claims 8, 12 and 17

Claims 8, 12 and 17 are grouped with claim 3, and stand or fall according to the allowability of claim 3.

Claim 4

Claim 4 recites:

4. The radio receiver of claim 2 wherein the radio processor mutes the amplified audio signal when the second output indication is received, and unmutes the amplified audio signal when the first output indication is received.

Claim 4 depends on claim 2, which depends on claim 1. Claim 1 recites that the voice-only detection mechanism provides the second output indication when the audio output of the tuner is mostly music, and provides the first output indication when the audio output of the tuner is mostly voice. Thus, reading claim 4 in light of the limitations in claim 1 results in the radio processor muting the amplified audio signal when the audio output of the tuner is mostly music, and unmuting the amplified audio signal when the audio output of the tuner is mostly voice. Neither Heinzelmann nor Eggers teach or suggest muting an amplified audio signal when the audio output of the tuner is mostly music. As state above in the discussion of claim 1, Heinzelmann is directed to a two-way voice and data radio system. As a result, Heinzelmann has no teaching whatsoever regarding the transmission of music. In Heinzelmann, the only thing that is muted is data. This expressly teaches away from muting an amplified audio signal when the audio output of the tuner is mostly music.

It is very interesting to compare the Examiner's rejection of claims 3 and 4. These two rejections have identical language and a cite to col. 5, lines 47-67 of Heinzelmann. Yet these two claims recite opposite limitations. Claim 3 recites muting an amplified audio signal when the audio output of the tuner is mostly voice, and unmuting the amplified audio signal when the audio output of the tuner is mostly music. Claim 4 recites muting an amplified audio signal when the audio output of the tuner is mostly music, and unmuting an amplified audio signal when the audio output

of the tuner is mostly voice. Claim 3 thus allows automatically muting of an amplified audio signal that is mostly voice, which allows a user to hear mostly music. Claim 4 allows automatically muting of an amplified audio signal that is mostly music, which allows a user to hear mostly voice. It is impossible for the same passage in Heinzelmann to render obvious both of these claims, because they recite opposite function. The bottom line is that neither Heinzelmann nor Eggers teach muting the amplified audio signal when the audio output of the tuner is mostly music. For this reason, claim 4 is allowable over the combination of Heinzelmann and Eggers. In addition, claim 4 depends on claim 2, which depends on claim 1, which is allowable for the reasons given above. As a result, claim 4 is also allowable as depending on an allowable independent claim. Appellant respectfully requests that the Examiner's rejection of claim 4 under 35 U.S.C. §103(a) be reversed.

Issue 2: Whether claims 5 and 15 are unpatentable as obvious under 35 U.S.C. §103(a) over the combination of Heinzelmann, Eggers and Vandegraaf

Claim 5 recites:

5. The radio receiver of claim 1 wherein the radio processor changes the tuner to a different radio station according to the first and second output indications of the voice-only detection mechanism.

Claim 1 recites that the voice-only detection mechanism provides the first output indication when the audio output of the tuner is mostly voice, and provides the second output indication when the audio output of the tuner is mostly music. If we read claim 5 in light of the first and second output indications recited in claim 1 (upon which claim 5 depends), claim 5 recites that the radio processor changes the tuner to a different radio station according to the signals from the voice-only detection mechanism that indicate whether the audio output of the tuner is mostly voice or mostly music. In Vandegraaf, if a non-priority channel is being listened to when a transmission on a priority channel is present, the receiver tunes to the priority channel for the duration of the priority transmission on the priority channel, then switches back to the non-priority channel when the priority message is complete. While Vandegraaf does teach tuning to a different channel when a priority message is received, this has nothing whatsoever to do with the voice-only detection mechanism recited in claims 1 and 5, which provide different output indications depending on whether the audio output of the tuner is mostly voice or mostly music. For this reason, Vandegraaf does not teach the radio processor recited in claim 5 that changes the tuner to a different radio station according to the first and second output indications of the voice-only detection mechanism recited in claim 1. As a result, claim 5 is allowable over the combination of Heinzelmann, Eggers and Vandegraaf. In addition, claim 5 depends on claim 1, which is allowable for the reasons given above. As a result, claim 5 is also allowable as depending on an allowable independent claim. Appellant

respectfully requests that the Examiner's rejection of claim 5 under 35 U.S.C. §103(a) be reversed.

Claim 15

Claim 15 is grouped with claim 5, and stands or falls according to the allowability of claim 5.

Issue 3: Whether claim 7 is unpatentable as obvious under 35 U.S.C. §103(a) over the combination of Heinzelmann, Eggers and Kim

Claim 7 is grouped with claim 1, and stands and falls according to the allowability of claim 1.

Issue 4: Whether claims 6 and 16 are allowable in their current dependent form

Claim 6 depends on claim 5, which depends on claim 1, which is allowable for the reasons given above. Claim 16 depends on claim 10, which is allowable for the reasons given above. As a result, claims 6 and 16 are allowable as depending on allowable independent claims.

CONCLUSION

Claims 1-8, 10 and 12-17 are addressed in this Appeal. For the numerous reasons articulated above, appellant maintains that the rejection of claims 1-8, 10 and 12-17 under 35 U.S.C. § 103(a) is erroneous.

Appellant respectfully submits that this Appeal Brief fully responds to, and successfully contravenes, every ground of rejection and respectfully requests that the final rejection be reversed and that all claims in the subject patent application be found allowable.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Derek P. Martin", is written over a horizontal line.

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APPENDIX - CLAIMS FINALLY REJECTED

- 1 1. A radio receiver comprising:
 - 2 a tuner that provides an audio output for a selected radio station;
 - 3 a voice-only detection mechanism that monitors the audio output of the tuner, and
 - 4 that provides a first output indication when the audio output of the tuner is mostly voice,
 - 5 and that provides a second output indication when the audio output of the tuner is mostly
 - 6 music; and
 - 7 a radio processor coupled to the voice-only detection mechanism, the radio
 - 8 processor changing an operational mode of the radio receiver according to the first and
 - 9 second output indications of the voice-only detection mechanism.
- 1 2. The radio receiver of claim 1 further comprising an amplifier coupled to the audio
 - 2 output of the tuner that provides an amplified audio signal to at least one speaker, wherein
 - 3 the radio processor changes the operational mode of the radio receiver by muting the
 - 4 amplified audio signal according to the first and second output indications of the voice-
 - 5 only detection mechanism.
- 1 3. The radio receiver of claim 2 wherein the radio processor mutes the amplified audio
 - 2 signal when the first output indication is received, and unmutes the amplified audio signal
 - 3 when the second output indication is received.
- 1 4. The radio receiver of claim 2 wherein the radio processor mutes the amplified audio
 - 2 signal when the second output indication is received, and unmutes the amplified audio
 - 3 signal when the first output indication is received.
- 1 5. The radio receiver of claim 1 wherein the radio processor changes the tuner to a
 - 2 different radio station according to the first and second output indications of the voice-
 - 3 only detection mechanism.

1 6. The radio receiver of claim 5 further comprising:
2 a spectrum analyzer coupled to the audio output of the tuner, the spectrum
3 analyzer storing a preferred frequency spectrum signature for a radio signal;
4 a second tuner coupled to the radio processor;
5 the radio processor scanning available radio stations using the second tuner to
6 locate a program that matches the preferred frequency spectrum signature within
7 predetermined criteria, and changing to a radio station that matches the preferred
8 frequency spectrum signature when the first output indication is received.

1 7. The radio receiver of claim 1 further comprising at least one adjustment mechanism
2 that adjusts at least one threshold that determines when the voice-only detection
3 mechanism asserts the first and second output indications.

1 8. A radio receiver comprising:
2 a tuner that provides an audio output for a selected radio station;
3 an amplifier coupled to the audio output of the tuner that provides an amplified
4 audio signal to at least one speaker,
5 a voice-only detection mechanism that monitors the audio output of the tuner, and
6 that provides a first output indication when the audio output of the tuner is mostly voice,
7 and that provides a second output indication when the audio output of the tuner is mostly
8 music; and
9 a radio processor coupled to the voice-only detection mechanism, the radio
10 processor muting the amplified audio signal when the first output indication is received,
11 and unmuting the amplified audio signal when the second output indication is received.

1 9. (Allowed)

1 10. A method for changing an operational mode of a radio receiver, the method
2 comprising the steps of:
3 (A) analyzing an audio output of a tuner;
4 (B) providing a first output indication when the audio output is mostly voice;
5 (C) providing a second output indication when the audio output is mostly music;
6 and
7 (D) changing the operational mode of the radio receiver according to the first and
8 second output indications.

1 11. (Canceled)

1 12. The method of claim 10 wherein step (D) mutes an amplified audio signal from the
2 tuner when the first output indication is received, and unmutes the amplified audio signal
3 from the tuner when the second output indication is received.

1 13. The method of claim 10 wherein step (D) changes the operational mode of the radio
2 receiver by muting an amplified audio signal from the tuner.

1 14. The method of claim 10 wherein step (D) changes the operational mode of the radio
2 receiver by unmuting an amplified audio signal from the tuner.

1 15. The method of claim 10 wherein step (D) changes the operational mode of the radio
2 receiver by changing the tuner to a different radio station.

1 16. The method of claim 10 further comprising the steps of:
2 storing a preferred frequency spectrum signature for a radio signal;
3 scanning available radio stations to locate a program that matches the preferred
4 frequency spectrum signature within predetermined criteria;
5 wherein step (D) changes the operational mode of the radio receiver by changing
6 the tuner to a radio station that is currently broadcasting a program that matches the
7 preferred frequency spectrum signature.

1 17. A method for changing the operational mode of a radio receiver, the method
2 comprising the steps of:
3 providing an audio output for a selected radio station;
4 amplifying the audio output;
5 supplying the amplified audio output to at least one speaker,
6 monitoring the audio output;
7 providing a first output indication when the audio output is mostly voice;
8 providing a second output indication when the audio output is mostly music; and
9 muting the amplified audio signal when the first output indication is received, and
10 unmuting the amplified audio signal when the second output indication is received.

1 18. (Allowed)